Title (en)

Cryogen-cooled open MRI superconductive magnet

Title (de)

Offener kryogengekühlter supraleitender Magnet für die Bilderzeugung durch magnetische Resonanz

Title (fr)

Aimant supraconducteur ouvert pour IRM, refroidi par un cryogène

Publication

EP 0773565 B1 20000126 (EN)

Application

EP 96307920 A 19961031

Priority

US 55595295 A 19951113

Abstract (en)

[origin: US5563566A] An open magnetic resonance imaging (MRI) magnet having longitudinally spaced-apart superconductive main coils surrounded by a dewar containing a cryogenic liquid (e.g., liquid helium) and boiled-off cryogenic gas (e.g., helium vapor). A condenser is in physical contact with the boiled-off vapor and is in thermal contact with a cold stage of a cryocooler coldhead so as to re-liquefy the vapor. This allows the coils to be surrounded by a single (not double) thermal shield which allows the coils structurally to be located closer to the magnet's open space which reduces magnet cost by reducing the amount of coil needed for the same-strength magnetic field.

IPC 1-7

H01F 6/00; G01R 33/3815

IPC 8 full level

A61B 5/055 (2006.01); **G01R 33/38** (2006.01); **G01R 33/3815** (2006.01); **H01F 6/00** (2006.01)

CPC (source: EP US)

G01R 33/3806 (2013.01 - EP US); G01R 33/3815 (2013.01 - EP US); Y10S 505/893 (2013.01 - EP)

Designated contracting state (EPC)

DE GB NL

DOCDB simple family (publication)

US 5563566 A 19961008; DE 69606379 D1 20000302; DE 69606379 T2 20000824; EP 0773565 A1 19970514; EP 0773565 B1 20000126; JP 3663266 B2 20050622; JP H09187440 A 19970722

DOCDB simple family (application)

US 55595295 A 19951113; DE 69606379 T 19961031; EP 96307920 A 19961031; JP 29917096 A 19961112